Abstract

Various types of insecticides are used to control insect pests in agro-ecosystem. These insecticides have negative impact on natural predators. It is therefore necessary to evaluate the side effects of different insecticides on orb-web spiders which are biological control agents. Vast use of insecticides diminished the spider diversity. Present study was designed to record the effect of λ-cyhalothrin, Bifenthrin and Glyphosate on the mortality, foraging behavior and activity of insecticides detoxifying enzymes of *Neoscona theisi.* Spiders were collected from fields of University of the Punjab Lahore.

Spiders were divided into experimental and control group. Recommended field doses of λ-cyhalothrin (0.5ml/250ml of water), Bifenthrin (0.25ml/625ml of water) and Glyphosate (1ml/100ml of water) were used. Spiders were exposed for 24 to insecticides/herbicides to check the mortality rate, avoidance behaviour and foraging. Highest mortality in spiders was recorded against λ-cyhalothrin. Spider spent less time on insecticides/herbicide treated surfaces. Insecticides/herbicide treated spiders consumes less prey than control group.Acetylcholine esterase and Carboxyl esterase were measured in spiders that survive after 24 hours exposure of insecticides/herbicide. Increased activity of AChE and CarE were recorded against insecticides/herbicide treated spiders as compared to control group. Total protein contents were less in insecticides/herbicide treated spiders than control group

The results revealed that insecticides/herbicide affected the spiders foraging behaviour. λ-cyhalothrin was found more harmful to spiders as compare to Bifenthrin and Glyphosate. It is suggested that effect of all pesticides used in agro-ecosystem on beneficial insects should be evaluated before using them in fields.